



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Marine Fisheries Service  
Alaska Fisheries Science Center  
7600 Sand Point Way NE  
Seattle, WA 98115

### Project Instructions


**Date Submitted:** April 17, 2015


**Platform:** NOAA Ship *Oscar Dyson*

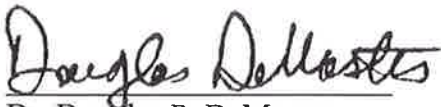
**Project Number:** DY-15-06 (OMAO)

**Project Title:** Acoustic-trawl survey of the Gulf of Alaska Shelf from the Islands of Four Mountains to Yakutat trough including associated bays

**Project Dates:** 11 June – 16 August, 2015

Prepared by:  Dated: 4/28/15  
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Approved by: \_\_\_\_\_ Dated: 29 May 2015  
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Commanding Officer  
Marine Operations Center – Pacific



## I. Overview

- A. Brief Summary and Project Period: Acoustic-trawl survey, 11 June – 16 August, 2015
- B. Days at Sea (DAS): Of the 60 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 60 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 0 DAS are Other Agency funded. This project is estimated to exhibit a High Operational Tempo.
- C. Operating Area: The Gulf of Alaska from the Islands of Four Mountains to Yakutat Trough with associated Bays and Troughs (see Appendix A).
- D. Summary of Objectives: (1) collect acoustic-trawl (AT) data necessary to determine the distribution, biomass, and biological composition of walleye pollock and other midwater fishes; (2) calibrate the acoustic systems using standard sphere calibration techniques; (3) collect target strength data using centerboard-mounted or lowered transducers for use in scaling acoustic data to estimates of absolute abundance; (4) collect physical oceanographic data (temperature and salinity profiles) at selected sites using CTD and XBT's, and continuously collect sea surface temperature and salinity data using the ships flow thru water monitoring system; (5) conduct trawl hauls (AWT, PNE, Marinovich, and Methot) to ground truth multi-frequency acoustic data collection; (6) deploy a drop-camera system from the hero deck to identify echosign in areas where trawling is not possible due to rough terrain; (7) collect sea floor topography data at “trawlable” and “untrawlable” sites using the EK60, ME70 multi-beam, and a broadband echosounders and deploy a drop-camera system to identify, enumerate, and obtain species and size information for the echosign; (8) collect sea floor topography data along with water samples at the surface, using the ships flow thru system, and at depth, using the CTD rosette with Niskin bottles, at areas identified as emitting bubbles from the seafloor from suspected methane vents.
- E. Participating Institutions: Alaska Fisheries Science Center (AFSC), Seattle, WA; Alaska Fisheries Science Center – University of Washington – Joint Institute for the Study of the Atmosphere and Ocean (AFSC-UW-JISAO), Seattle, WA; NOAA Teacher-at-sea Program (NOAA-TAS), Silver Spring, MD; Pacific Islands Fishery Science Center - University of Hawaii - Joint Institute for Marine and Atmospheric Research (PIFSC-UH-JIMAR), Honolulu, HI; University of New Hampshire (UNH), Durham, NH; University of Washington (UW), Seattle, WA
- F. Personnel/Science Party: Subject to change

Leg 1

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Bassett, Chris	Student	June 9	July 25	Male	AFSC-UW-JISAO	USA

Collins, Emily	Fish Biologist	June 9	Aug 16	Female	AFSC – contractor	USA
Columbo, Vincent	Teacher	June 8	July 2	Male	NOAA-TAS	USA
Durkan, Nikki	Teacher	June 9	June 30	Female	NOAA-TAS	USA
Furnish, Scott	IT Specialist	June 6	June 30	Male	AFSC	USA
Jones, Darin	Fish Biologist	June 9	June 30	Male	AFSC	USA
Levine, Robert	Fish Biologist	June 9	July 25	Male	AFSC - contractor	USA
Miller, Dianna	Biologist	June 9	June 30	Female	PIFSC-UH-JIMAR	USA
Ressler, Patrick	Chief Scientist	June 9	June 30	Male	AFSC	USA
Weber, Tom	Acoustician	June 9	June 30	Male	UNH	USA

Leg 2

<b>Name (Last, First)</b>	<b>Title</b>	<b>Date Aboard</b>	<b>Date Disembark</b>	<b>Gender</b>	<b>Affiliation</b>	<b>Nationality</b>
Arterburn, Derek	Student	July 4	July 25	Male	UW	USA
Bassett, Chris	Student	June 9	July 25	Male	AFSC-UW-JISAO	USA
Collins, Emily	Fish Biologist	June 9	Aug 16	Female	AFSC - contractor	USA
Honkalehto, Taina	Chief Scientist	July 4	July 25	Male	AFSC	USA
Kawano, Dane	Student	July 4	July 25	Male	UW	USA
Lauffenburger, Nathan	Fish Biologist	July 4	Aug 16	Male	AFSC	USA
Levine, Robert	Fish Biologist	June 9	July 25	Male	AFSC - contractor	USA
Schmuttermair, Andrea	Teacher	July 4	July 25	Female	NOAA-TAS	USA
Williams, Kresimir	Fish Biologist	July 4	July 25	Male	AFSC	USA

Leg 3

<b>Name (Last, First)</b>	<b>Title</b>	<b>Date Aboard</b>	<b>Date Disembark</b>	<b>Gender</b>	<b>Affiliation</b>	<b>Nationality</b>
Collins, Emily	Fish Biologist	June 9	Aug 16	Female	AFSC - contractor	USA
Jones, Darin	Chief Scientist	July 26	Aug 16	Male	AFSC	USA
Lauffenburger, Nathan	Fish Biologist	July 4	Aug 16	Male	AFSC	USA
McKelvey, Denise	Fish Biologist	July 26	Aug 16	Female	AFSC	USA
Neidetcher, Sandi	Fish Biologist	July 26	Aug 16	Female	AFSC	USA
Towler, Rick	IT Specialist	July 26	Aug 16	Male	AFSC	USA
Veresan, Cristina	Teacher	July 26	Aug 16	TBD	NOAA-TAS	USA
Wilson, Mackenzie	Student	July 26	Aug 16	Female	UW	USA

G. Administrative

1. Point of Contact: Darin Jones (Chief Scientist, Leg 3), 7600 Sand Point Way NE, Seattle, WA. 98115, 206-526-4166, [darin.jones@noaa.gov](mailto:darin.jones@noaa.gov)
2. Diplomatic Clearances: None Required
3. Licenses and Permits: This Project will be conducted under a Scientific Research Permit issued by the Alaska Regional Office, National Marine Fisheries Service (SRP #2015-B1), and a Fish Resource Permit issued by the State of Alaska (CF-13-002). The Chief Scientist will be included as an authorized participant on both permits.

II. Operations

A. Project Itinerary:

Leg 1

Jun 9	Embark scientists in Kodiak, AK
Jun 10	load survey gear
Jun 11	Depart Kodiak, AK
Jun 12	Sphere calibration in location TBD
Jun 13-14	Transit to survey start south of Samalga Pass
Jun 14-29	AT survey of the GOA shelf, shelf break, and bays
Jun 30	Arrive in port Kodiak, AK
Jun 30-July 6	Inport Kodiak, AK; exchange scientific crew

Leg 2

July 6-24	Continuation of AT survey of the GOA shelf, shelf break and bays
Jul 25	Arrive in port Kodiak, AK
Jul 25-28	Inport Kodiak, AK; exchange scientific crew

Leg 3

Jul 28-Aug 14	Continuation of AT survey of the GOA shelf, shelf break and bays
Aug 15	Sphere calibration in a location TBD
Aug 16	Arrive Kodiak; disembark scientific party

Note: additional calibrations may be conducted at sites and dates TBD.

- B. Staging and Destaging: Scientific gear was loaded and mounted onto the vessel in Seattle, WA prior to departure for the gear trials in Puget Sound on Jan. 18, 2015. Additional gear, including PNE and AWT nets, a methot frame, camtrawl frame and

several large totes stored in the warehouse in Kodiak will be loaded aboard the ship during the June 8-10 inport. The disposition of science gear at cruise end will be arranged and agreed upon by the CO and Chief Scientist.

C. Operations to be conducted

1. Acoustic data will be collected continuously along a series of parallel transects during daylight hours with a Simrad EK60 scientific echo integration system incorporating five centerboard-mounted transducers (18, 38, 70, 120, 200 kHz), a customized wideband transducer spanning frequencies of 10-100 kHz mounted on the centerboard, and a hull mounted ME70 multibeam echosounder. Periodically the EK60 transceivers will be switched with EK80 transceivers to test the functionality of the new wideband scientific echo integration system. Operating the following equipment will degrade the quality of the acoustic data:

- Other echosounders or acoustic equipment including the Doppler speed log and bridge Furuno depth sounder.
- The bow thruster.

It is requested that this equipment not be operated unless necessary to ensure the safe navigation of the vessel or at the discretion of the command. If the equipment is operated, these times will be noted in the ships SCS/electronic MOA.

Parallel transects at 25 nmi spacing will extend from Samalga Pass near the Islands of Four Mountains to Yakutat Trough. Transects will not generally extend into waters less than 50 m bottom depth nor greater than 1,000 m depth. Several orthogonal transects may be run at the discretion of the Chief Scientist. Other areas will be surveyed using closer-spaced transects. These areas include Sanak Trough, Morzhovoi Bay, Pavlof Bay, the Shumagin Islands area, Mitrofanina Island, Nakchamik Island, Alitak Bay, Barnabas Trough, Chiniak Trough, Marmot Bay, Shelikof Strait, several Kodiak Island and Kenai Peninsula Bays, Prince William Sound, and Yakutat Bay. (Appendix A). Trackline start and end points will be provided in an electronic file to the Navigation Officer. The ship is expected to maintain a shaft speed of no less than 105 RPM (averaging 11 to 12 knots) in favorable conditions (as weather and safe operation of the vessel allow).

Acoustic trawl survey operations require that an Aleutian wing trawl (AWT) midwater and poly Nor'eastern (PNE) bottom trawl with roller gear be loaded onto the net reels. A spare AWT and PNE will serve as backups. Codend liner mesh size will be 0.5" for both the AWT and the PNE. Fishbuster doors will be used with all trawls. Small fishes or zooplankton may be sampled using smaller nets (e.g., Marinovich or Methot nets). We request that the Chief Boatswain keep a trawl gear logbook to record any modifications made to trawl gear during the Project.

Trawl hauls will be made to identify acoustic backscatter and provide pollock samples and other biological data. Haul duration will be kept to the minimum necessary to ensure an adequate sample. We anticipate that on average 2-3 tows will be conducted during a

24-hour period. Biological data collected from each haul will include species composition, sex composition, length frequencies, whole fish and ovary weights, maturities, and otoliths. Walleye pollock tissue samples will be collected from selected hauls for aging and fecundity studies.

A Cam-Trawl camera system will be deployed in the intermediate of the midwater trawl to optically sample fish. Prior to being loaded, the AWT will have been modified with an opening in the starboard side panel allowing the attachment of the camera. When the Cam-Trawl is not attached, the opening can be sewn shut to prevent fish escapement.

The Scientific Computing System (SCS) will run continuously throughout the Project and will be configured to log data from various sensors at a rate of 1-Hz.

When all trawl operations have been completed for the survey, sufficient time should be allotted for streaming of all trawl nets used during the survey. Trawl nets should be streamed behind the vessel with the codend open to ensure nets are clean and free of fish and other debris for storage. Nets should be visually inspected as they are brought in and any debris still entangled in webbing should be removed.

2. A standard sphere calibration of the scientific acoustic systems (EK60 18, 38, 70, 120, 200 kHz, ME70, wideband, and EK80 18, 38, 70, 120, 200 kHz) will be conducted at the beginning and near the end of the Project in locations to be determined. This requires anchoring the vessel at the bow and stern and suspending a calibration sphere assembly directly beneath the vessel's centerboard. A CTD cast will be conducted prior to the calibrations.

3. Target strength data collection will occur on an opportunistic basis. These data are used to validate the relationship between fish length and target strength. Data will be collected when certain conditions (i.e., low fish densities, single species) are encountered. Collecting target strength data typically involves repeated passes over an aggregation of fish at a vessel speed of less than 3 knots. One or two trawl hauls are made to provide species composition and biological data. When calm seas are encountered along with the above-mentioned conditions, a second approach to collecting target strength data may be attempted: with the vessel stopped, a "drop-TS" assembly containing a 38-kHz transducer will be lowered to a depth just above the fish sign.

4. Conductivity-temperature-depth (CTD) data will be collected with a Seabird SeaCat system at selected locations both day and night, with assistance from the ship's Survey Technicians. Locations for planned CTD stations will be provided in an electronic file to the Navigation Officer. Temperature and depth profile data will also be collected at select locations using the ship's expendable bathythermograph (XBT) system and probes supplied by the scientific party. Locations for planned XBT stations will be provided in an electronic file to the Navigation Officer. Temperature and depth profile data will also be collected with a Seabird SBE39 micro-bathythermograph attached to the trawl headrope. Sea surface temperature and salinity will be collected continuously throughout the Project and logged with the vessel's Scientific Collection System (SCS).

5. If single-species aggregations are encountered (e.g. rockfish, euphausiid, capelin), opportunistic trawl hauls (AWT, PNE, Marinovich, or Methot) may be conducted to ground truth multi-frequency and wideband acoustic data collection.

6. During daytime survey operations, if echosign identification using a trawl is impractical (i.e., “untrawlable” bottom) a drop camera system will be deployed. The drop camera will be lowered using a 240-V, 2-phase winch supplied by the scientific party which will be secured to the starboard hero deck using an aluminum frame attached to the hero deck with Baxter bolts (see appendix C for photo of winch). A block for the drop camera winch cable will also be supplied and will need to be secured to the aft end of the starboard “A” frame by the ship. A backup winch will be stored in the “CTD garage” during the survey. Scientific party will operate the winch but deck and or survey assistance will be necessary for deploying and retrieving the camera.

7. During nighttime hours, areas of previously identified “trawlable” and “untrawlable” habitat will be surveyed with fine-scale grids using the EK60 and ME70 multibeam system together with camera drops (system mentioned above) for groundtruthing bottom type and identification of species composition and length distribution. In support of ME70 operations this summer, we request that vessel draft measurements (fore/aft and port/stbd) be provided to the Chief Scientist whenever the vessel departs or returns to port.

8. In areas identified as having bubble seeps emerging from the substrate, a small grid survey of the area will be conducted using the ME70 multibeam system. Surface water samples will be collected using the ships flow-thru system, and water samples will be collected at multiple targeted depths around the vent area using the CTD rosette and Niskin bottles. Water samples will be preserved on board for later analysis.

D. Dive Plan

It may be requested to deploy divers during the survey if it is suspected that the propeller has been fouled. We also request that ship’s divers inspect and report the condition of the hull, propeller, centerboard transducers, and ME70 transducer prior to survey departure.

All dives are to be conducted in accordance with the requirements and regulations of the NOAA Diving Program (<http://www.ndc.noaa.gov/dr.html>) and require the approval of the ship’s Commanding Officer.

E. Applicable Restrictions: Conditions which preclude normal operations include: poor weather conditions, equipment failure, safety concerns, and other unforeseen circumstances. The Chief Scientist will confer with the commanding officer to mitigate the impacts of these circumstances on the project goals.

### III. Equipment

A. Equipment and Capabilities Provided by the Ship (number is 1 unless specified)

1. Acoustic Equipment
  - GPS with NEMA 183 to EK-60 (2)
  - 50/200 kHz ES60 Bridge sounder
  - Furuno FE-700 fathometer
2. Trawling Equipment
  - 3rd wire FS-70 net sonar with winch and accessories (2)
  - Simrad ITI net mensuration system (2)
  - Furuno CN24 headrope transducer
3. Oceanographic Equipment
  - Seabird SBE 911plus CTD rosette System with Niskin water collection bottles
4. Biological Sampling Equipment
  - Fish lab conveyor system
  - Catch sorting and weighing table
5. Computing equipment
  - Scientific Computing System

B. Equipment and Capabilities Provided by the Scientists (number is 1 unless specified)

1. Acoustic Equipment
  - Simrad EK60 system (2)
  - Simrad ES18 transducer (2)
  - Simrad ES38B transducer (2)
  - Simrad ES38DD transducer
  - Simrad ES70 transducer
  - Simrad ES120-7C transducer (2)
  - Simrad ES200-7C transducer (3)
  - Standard target & suspension assembly
  - Simrad ME70 system
  - Simrad EK80 system
  - Customized wideband transceiver and transducer

Note that some of this equipment is ship's equipment and some is supplied by the scientists, but the scientific party will operate and troubleshoot the equipment.

2. Trawling Equipment
  - Aleutian wing trawl (AWT) with 0.5" mesh liners and accessories needed for deployment (2)
  - Poly nor'eastern (PNE) trawl with 0.5" mesh liners and accessories needed for deployment (2)
  - Marinovich trawl w/accessories
  - Methot net with accessories (2)
  - Dandylines (10 fm x 1/2 in.)
  - Dandylines (30 fm x 5/8 in.)
  - Fishbuster door with accessories (2 sets) – set with sensor pockets to be used as primary set
  - Spare webbing & twine



- Spare 0.5" mesh cod end liners (2)
  - Spare hardware
  - 500 lb. tom weights (4)
  - 250 lb. tom weights (4)
  - Cam-Trawl system
  - Drop camera system including winch (2)
  - Miscellaneous supplies\*
  - 3. Oceanographic Equipment
    - Seabird SBE39 (2)
    - Seabird SBE 19plus CTD
    - Sippican Deep Blue XBT's (10 cases)
  - 4. Biological Sampling Equipment
    - Dynamometer
    - Marel M60 60 kg scale (2)
    - Marel M60 6 kg scale (2)
    - Fish baskets (30)
    - Glycerin/Thymol\*
    - Formalin\*
    - Mercuric Chloride\*
    - Misc. biological supplies\*
  - 5. Computing equipment
    - IBM compatibles w/Windows 7 Op.System\*
    - Dell PowerEdge MACEBASE Server
    - Printers\*
- Note: \* indicates amount not specified.

#### **IV. Hazardous Materials**

##### **A. Policy and Compliance**

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials by name and quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents

- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program.
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory of hazardous material indicating all materials have been used or removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of scientific chemicals is not permitted during projects aboard NOAA ships.

## B. Inventory

### **Chemical Inventory and Spill Plan**

<b>Common Name of Material</b>	<b>Qty</b>	<b>Notes</b>	<b>Trained Individual</b>	<b>Spill control</b>
Glycerol (50%) / Thymol (1%)	5 gal. (19 L)	Non-Hazardous in quantities used	Darin Jones	G
Formaldehyde solution (37%)	4.2 gal. (16 L)	Stored in ship chem. locker	Darin Jones	F
Mercuric Chloride	0.03 gal(100 mL)	Stored in ship chem. locker	Darin Jones	MC

These items are included in MACE/FOCI/PMEL joint hazardous material inventory (Appendix C).

## C. Chemical safety and spill response procedures (also see Appendix C)

### **G: Glycerol/Thymol**

- Cover spill with kitty litter to absorb
- Sweep up litter and dispose of

- Rinse affected area with copious amounts of water.

**F: Formalin/Formaldehyde**

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.
- Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as saw dust.

**MC: Mercuric Chloride**

- Ventilate area of leak or spill.
- Wear appropriate personal protective equipment. Avoid contact with skin, eyes, clothing
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Inventory of Spill Kit supplies

Product Name	Amount	Chemicals it is useful against	Amount it can clean up
Neutralex	5 gal. (18.9 L)	Formaldehyde solution (37%)	5 gal. (18.9 L)

D. Radioactive Isotopes: No Radioactive Isotopes are planned for this project.

**V. Additional Projects**

- A. Supplementary (“Piggyback”) Projects: Secondary objectives of the Project include scientific research requested by AFSC and other investigators. Anticipated projects include specimen collections from standard trawl hauls such as ovary collection from pre-spawning walleye pollock and rockfish. Detailed descriptions of additional ancillary projects will be provided as soon as received. Significant changes to these projects that affect vessel operations will be communicated as soon as they are known.
- B. NOAA Fleet Ancillary Projects: No NOAA Fleet Ancillary Projects are planned.

**VI. Disposition of Data and Reports**

Disposition of data gathered aboard NOAA ships will conform to NAO 216-101 *Ocean Data Acquisitions* and NAO 212-15 *Management of Environmental Data and Information*. To guide the implementation of these NAOs, NOAA’s Environmental Data Management Committee (EDMC) provides the *NOAA Data Documentation Procedural Directive* (data documentation) and *NOAA Data Management Planning Procedural Directive* (preparation of Data Management Plans). OMAO is developing procedures and allocating resources to manage OMAO data and Programs are encouraged to do the same for their Project data.

- A. Data Classifications: *Under Development*
- a. OMAO Data

b. Program Data

B. Responsibilities:

1. An electronic Marine Operations Abstract (MOA) will be created to log all operations via daily transfers of position data from the ship's SCS system to MACE. An appropriate logging interval will be chosen for automated track position data. Specific events (and frequency) to be recorded will be decided at the beginning of the project. Globe software will be available to log operations data as a backup. All times should be recorded as Greenwich Mean Time (GMT)

2. The data sets requested by the Chief Scientist from the ship will include the following: electronic files (MOA) from the SCS of all operations logged during the project, and backup media (e.g., DVDs) with all sensor data logged to the Scientific Computer System (SCS).

3. The Chief Scientist will represent the AFSC lab director for data disposition. A single copy of all data gathered by the vessel will be delivered to the Chief Scientist, who in turn will be responsible for distributing data to other investigators desiring copies.

**VII. Meetings, Vessel Familiarization, and Project Evaluations**

- A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.
- B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start, per OMAO Procedure 1201-08, NOAA Ship Vessel Familiarization, and is normally presented by the ship's Operations Officer.
- C. Post-Project Meeting: The Commanding Officer is responsible for conducting a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

- D. Project Evaluation Report: Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at <http://www.oma.noaa.gov/fleeteval.html> and provides a “Submit” button at the end of the form. Submitted form data is deposited into a spreadsheet used by OMAO management to analyze the information. Though the complete form is not shared with the ships’, specific concerns and praises are followed up on while not divulging the identity of the evaluator.

## **VIII. Miscellaneous**

### **A. Meals and Berthing**

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship’s command at least seven days prior to the project.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship’s complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non-NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 7, 1999 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

### **B. Medical Forms and Emergency Contacts**

The NOAA Health Services Questionnaire (NHSQ, Revised: 02 JAN 2012) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website <http://www.corporateservices.noaa.gov/~noaaforms/eforms/nf57-10-01.pdf>.

All NHSQs submitted after March 1, 2014 must be accompanied by [NOAA Form \(NF\) 57-10-02](#) - Tuberculosis Screening Document in compliance with [OMAO Policy 1008](#) (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance ([http://ocio.os.doc.gov/ITPolicyandPrograms/IT\\_Privacy/PROD01\\_008240](http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240)).

The only secure email process approved by NOAA is [Accellion Secure File Transfer](#) which requires the sender to setup an account. [Accellion's Web Users Guide](#) is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to [accellionAlerts@doc.gov](mailto:accellionAlerts@doc.gov) requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The "Send Tab" function will be accessible for 30 days.

Contact information:

Regional Director of Health Services  
Marine Operations Center – Pacific  
2002 SE Marine Science Dr.  
Newport, OR 97365  
Telephone 541-867-8822  
Fax 541-867-8856  
Email [MOP.Health-Services@noaa.gov](mailto:MOP.Health-Services@noaa.gov)

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

C. Shipboard Safety

Hard hats are required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. At the discretion of the ship CO, safety shoes (i.e. steel or composite toe protection) may be required to participate in any work dealing with suspended loads, including CTD deployment and recovery. The ship does not provide steel-toed boots. The ship's Operations Officer should be consulted by the Chief Scientist to ensure members of the scientific party report aboard with the proper attire.

#### D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required it must be arranged at least 30 days in advance.

#### E. IT Security

Any computer that will be hooked into the ship's network must comply with the *OMAO Fleet IT Security Policy* 1.1 (November 4, 2005) prior to establishing a direct connection to the NOAA WAN. Requirements include, but are not limited to:

- (1) Installation of the latest virus definition (.DAT) file on all systems and performance of a virus scan on each system.
- (2) Installation of the latest critical operating system security patches.
- (3) No external public Internet Service Provider (ISP) connections.

Completion of these requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

#### F. Foreign National Guests Access to OMAO Facilities and Platforms

Foreign National access to the NOAA ship or Federal Facilities is not required for this project.

#### G. Marine Mammal, Endangered, and Protected Species

During fishing operations, take all proactive steps to avoid deploying the gear in any situation where there is a high likelihood for an incidental take of protected species or marine mammals.

This could mean delaying a set or moving to a suitable alternate site. Be on the look for marine mammals or other protected species prior to initiating a tow and also at haul back.

Within 24 hours of any incidental take of, or injuries or mortalities to, marine mammals as a result of operations, the Chief Scientist/Field Party Chief shall report incident to the vessel CO, Jon Kurland (jon.kurland@noaa.gov, 907-586-7638) or Robyn Angliss (robyn.angliss@noaa.gov, 206-526-4032), and guy.fleischer@noaa.gov and jeff.napp@noaa.gov with cc to john.c.clary@noaa.gov. This information will be entered into the Protected Species Incidental Take (PSIT) system per instructions below.

Seabirds can be sampled and retained for salvage – if take involves seabird, include Shannon Fitzgerald in notification at shannon.fitzgerald@noaa.gov. If take involves ESA-listed bird, retain specimen and we will notify FWS (to issue collection authority). Do not retain gulls – except Kittiwakes. Albatross are high priority.

#### KEY ACTIONS IN RESPONSE TO ALL INCIDENTAL TAKES

1. Prior to the project, communicate and coordinate with vessel crew about established protected species incidental take reporting and handling procedures whether NOAA, charter, or partner project. Ensure regional ESA biologists and pertinent staff are in the PSIT email alert notification list. The Office of Law Enforcement (OLE) will be notified of takes via PSIT email alert system for all non-marine mammal takes including seabirds within 48 hours of the event.
2. Immediately notify bridge if incidental takes occur.
3. Notify the geographically-appropriate Regional Stranding Response Coordinator (numbers in this document) immediately following the incidental take of a marine mammal. Stranding Response Coordinator will contact Office of Law Enforcement (OLE). For live injured/uninjured marine mammals, priority should be to release the animal before notifying stranding response networks. NOTE: If Coordinators are unreachable, collect pertinent PSIT information and release animal and/or retain carcass if logistically feasible.
4. For a sea turtle or protected fish (injured/live/dead), follow the Terms and Conditions stated in your Fisheries Independent Monitoring Biological Opinion regarding reporting and data collection. If you do not have a current Biological Opinion, contact your designated Regional or Science Center Protected Species Point of Contact for instructions.
5. For handling, sampling and salvaging seabirds (ESA and non-ESA listed), contact regional United States Fish and Wildlife Service (USFWS) points of contact or NMFS regional seabird coordinator. If you have a permit, report seabird takes to PSIT.

#### PRE-PROJECT ACTIONS

- 1) Prior to the project, communicate and coordinate with vessel crew about established protected species incidental take reporting and handling procedures whether NOAA, charter, or partner project.



2) Ensure regional ESA biologists and pertinent protected resources staff is in the PSIT email alert notification list.

3) The NMFS Chief Scientist or Designee shall contact the appropriate Regional Stranding Network and query about additional numbers or specific contacts to reach in case of an incidental take of a marine mammal.

#### WHAT TO DO WITH LIVE, INJURED OR UNINJURED MARINE MAMMAL

If a live, injured or uninjured marine mammal is incidentally captured, the animal should be released immediately.

1) Considering human safety, work from the vessel as quickly and carefully as possible to free the animal from the gear. Ensure the animal can continue to breathe while freeing from the gear.

2) If it can be done immediately without further harming the animal, photograph the animal (dorsal and ventral sides including dorsal fin, flanks, head/jaw) and gear interaction at time of capture and when free from gear prior to release and collect required PSIT information.

3) If animal is NOT brought aboard the vessel and taking photos is not an option, provide a comprehensive summary of the incident following requirements described under 'PSIT narrative' in this document.

4) Notify Regional Stranding Response Coordinator about the incident.

5) Submit take information for submission to PSIT and attach any forms, photos, and narrative to the take record within a week of the event.

Note: Untrained personnel should not attempt to handle live injured/uninjured marine mammals or disentangle large whales. In the event of a large entangled whale, immediately call your regional entanglement response network.

#### WHAT TO DO WITH DEAD MARINE MAMMAL OR SEA TURTLE?

1) Notify Regional Stranding Network Coordinator about the take of a dead marine mammal.

2) For sea turtle takes, simply report the take/s to PSIT and follow the instructions listed in your Biological Opinion or follow Regional or Science Center Protected Species Point of Contact instructions.

~~3) If logistically feasible, the animal should be hauled aboard the vessel and retained for pick up by the local Stranding Network. Develop a plan with Stranding Network Coordinator or regional ESA biologist and/or relevant Center scientist for carcass pickup and subsequent necropsy.~~

~~4) If the animal cannot be hauled aboard due to human safety consideration or there is no feasible way for carcass retention onboard, release animal after necessary information is collected as described below.~~

5) Photos of the carcass should be taken: Dorsal fin, ventral side, and flank for marine mammals, as well as signs of entanglement, scars, and injuries. This also includes collecting required PSIT data.

6) Submit take information for submission to PSIT and attach any forms, photos, and narrative to the take record.

### PSIT Reporting

Report [1] Species involved, [2] number dead, number injured and released, or number uninjured and released, [3] date and time, [4] latitude and longitude, [5] any mitigation measures taken, [6] other comments or observations germane to this take. Note if photo was taken.

In addition to the required PSIT information please complete a narrative which includes the following information.

1) Animal Condition (include photos)

Code 1 – Live Animal

Code 2 – Fresh Dead

Code 3 – Moderate Decomposition

Code 4 – Advanced Decomposition

2) Mention if animal escaped or was released.

3) Indicate if the animal or other marine mammals or sea turtles were seen in the vicinity of the vessel during fisheries operations.

4) Animal condition post-release: Describe any observed injuries, the condition and behavioral state of released or injured animal (e.g., no obvious injuries and animal swam away vigorously, did not swim away vigorously, animal surfaced to breathe, animal sank to bottom, or blood in water observed).

5) If gear was still attached to animal after release, describe how the gear was cut and approximately how much gear is left and where it is still entangled/injured.

6) Photos: Provide comprehensive photographic evidence or written description of live/dead or injured animal. Provide pictures (if possible) of how the animal was entangled in the gear, and any gear-related interactions such as wounds or constrictions.

7) Decision-making: Include rationale for any discretionary decisions taken by Chief Scientist/crew.

8) Describe possible causes for incidental capture of the animal and any additional mitigation measures that were taken, or might be taken to prevent similar captures in all subsequent operations.

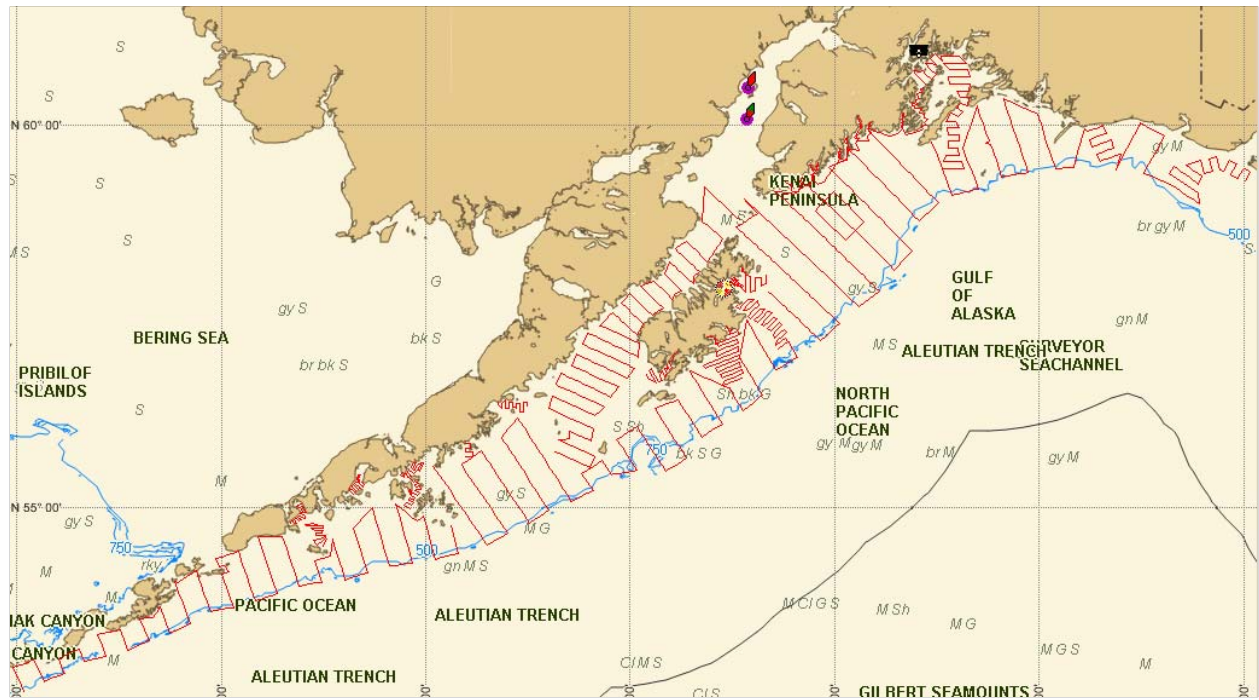
ENTANGLEMENT RESPONSE NETWORK NUMBER

Alaska Region: 1-877-925-7773

**Appendices**

- A. Proposed survey areas and tracklines
- B. Chemical Hygiene Plan
- C. Photo of drop camera winch attached to Hero deck during 201307 survey

**Appendix A - Proposed survey areas and tracklines.**



**Appendix B – Chemical Hygiene Plan**

The scientific chemicals to be used for this project are: 1) glycerin/thymol; 2) formaldehyde (37%). Dilutions of scientific chemicals will be used to preserve tissues collected from trawl samples as described in the Operations section of these Project instructions. Use of these chemicals and the specified dilutions will only occur in areas away from air intakes. Scientific chemicals shall not be disposed of over the side.

Standard Operating Procedures and Information Sheets are provided for the scientific chemicals. Included are details concerning personal protective equipment, work area precautions, special handling and storage requirements, spill and accident procedures/first aid, waste disposal and other pertinent information. Spills are of particular concern and should first be contained and then neutralized. In all cases, the first responder should evaluate the risks of personal exposure versus potential impacts of a delayed response. A large formaldehyde spill (>1L) is extremely hazardous and individuals at risk of exposure should immediately leave the area. The CO or OOD should be notified immediately so that a response team with self-contained breathing apparatus can be deployed to complete the cleanup operation or dispense the hazard with a fire hose directed overboard. The vessel’s course should be adjusted to minimize exposure of personnel to wind-driven vapors and to limit spread of the spill due to vessel motion.

Following is a list of all hazardous materials brought aboard for all MACE/FOCI/PMEL surveys by name and anticipated quantity. All chemicals listed will be used for the entire 2015 Dyson field season. Chemical volumes will be reported to the Ops Officer and the designated contact for each survey will be required to report to chemical owners. The name of the group responsible for each of the chemicals is designated after the chemical name in the table. MSDS, chemical hygiene plan, and SOPs will be provided to the Dyson before the loading of the vessel. Chemicals will be transported, stored and used in a manner that will avoid spills and adequate containment, absorbents, and cleanup materials will be available in the event of a spill.

**Joint Hazardous Material Inventory for all surveys and groups:**

Common Name	Concentration	Amount	Spill Response (all Recruitment Processes Program/MACE/Moorings group/EMA personnel)	Notes
Dihydrogen Oxide  Property of Moorings group		20 liters	Spill Control: W  Gloves Paper towels	Not a regulated chemical/solution. Used for oxygen titrations.
Ethanol  Property of Recruitment Processes Program	100%	4 -1 gal. plastic jugs	Gloves 3M Sorbent Pads Plastic bag	Store in Chem. Lab yellow flammables cabinet.
Ethylene Glycol  Property of Recruitment Processes Program	100%	1 – 500 ml	Gloves Paper towels Plastic bag	Not a regulated chemical. Store in Spill Kit.

Formaldehyde Property of Recruitment Processes Program	37%	5 – 5 gal. barrels	Gloves Eye Protection Fan-Pads Formalex PolyForm-F Plastic bags	Store in Fish Lab flammable cabinets. Will need to place 2-3 in each cabinet.
Formaldehyde Property of MACE	37%	16 – 1 liter plastic bottles	Gloves Eye Protection Fan-Pads Formalex PolyForm-F Plastic bag	Store in Fish Lab flammable cabinet.
Glycerol/Thymol Solution Property of MACE	50%	2 – 5 gal. buckets	Gloves Paper towels Kitty litter	Not a regulated chemical/solution. Store in Fish Lab under sink.
Lithium 3v Batteries Property of Recruitment Processes Program		12	NA	Store in Survey Office for Spring Mooring Multi-Net use
Lithium 9v Batteries Property of Moorings group		8	NA	In SeaBird and Wetlabs instruments
Lithium AA Batteries Property of Moorings group		96	NA	In SeaBird instruments and MicroCats Saft LS14500
Lithium D Cell Batteries Property of Moorings group		150	NA	In RCM9 & Peggy Mooring
Lithium Transponder Batteries Property of MACE		3	NA	Avoid heat and moisture during storage. Storage container will be provided by MACE.
Manganese Chloride	3M	1 liter		Not a regulated chemical/solution. Used for oxygen

Property of Moorings group				titrations.
Mercuric Chloride Property of MACE		100 mL	Spill Control:MC Gloves	Used for Methane water sample preservation
Potassium Iodate Property of Moorings group	0.00167 M	1 liter	Spill Control: PI Gloves Plastic bag	Used for oxygen titrations.
Sodium Borate Solution Property of Recruitment Processes Program	5-6%	1 – 5 gal.	Gloves Paper towels Plastic bag	Not a regulated chemical. Working container will be secured on Fish Lab counter.
Sodium Borate Powder Property of Recruitment Processes Program	100%	1 – 500 g	Gloves Wet paper towels Plastic bag	Not a regulated chemical. Stored in Spill Kit.
Sodium Iodide/NaOH Solution Property of Moorings group	0.11M	1 liter	Spill Control: B	Used for oxygen titrations.
Sodium Thiosulfate Property of Moorings group	0.11 M	1 liter	Spill Control: ST	Used for oxygen titrations.
Sulfuric Acid Property of Moorings group	5 M	1 liter	Spill Control: A	Used for oxygen titrations.
<b>Spill Kit Contents</b>	<b>Amount</b>	<b>Use</b>	<b>Total Spill Volume Controllable</b>	<b>Notes</b>
Formalex	1 – 5 gallon 2 -1 gallon	Formaldehyde cleanup (all concentrations)	1:1 control	Formalex will be used in conjunction with Fan-Pads to reduce spill volume.
Fan-Pads	2 rolls (50 sheets each)	Formaldehyde cleanup (all	50 sheets = 50 - 150 ml spills	Formalex will be used in

	roll)	concentrations)		conjunction with Fan-Pads to reduce total spill volume.
PolyForm-F	5 – 1 gal. plastic jugs	Formaldehyde cleanup (all concentrations)	1:1 control	Pour onto spill immediately to deactivate formaldehyde.
3 M Pads	10 pads	Ethanol cleanup	10 pads=10- 250ml spills	Pads may be reused if dried out under fume hood.
Nitrile Gloves	8 pairs each S,M,L,XL	For all cleanup procedures	N/A	Gloves will be restocked by each survey group.
Eye Protection	4 pairs goggles 1 face shield	Formaldehyde cleanup	N/A	Eye protection will be cleaned before re-use.
Tyvex Lab Coats	2 coats	Formaldehyde cleanup	N/A	Coats will be cleaned with Fan-Pads and Formalex before reuse.
Plastic Bags	2	Formaldehyde cleanup/Fan Pads	N/A	Bags may be packed full and sealed.

## SPILL CONTROL

### A: ACID

- Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas.
- Ventilate closed spaces before entering them.
- Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.
- **Large Spills:** Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.
- **Small Spills:** Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
- Never return spills in original containers for re-use.
- Neutralize spill area and washings with soda ash or lime. Collect in a non-combustible container for prompt disposal.
- J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

### B:Base

- Use proper PPE.



- Ventilate area.
- Neutralize with dilute acid such as HCl if possible.
- Absorb with cat litter or vermiculite.
- Vacuum or sweep up material and place into suitable disposal container.
- Do not breath dust.
- Do not get water on spilled substances.

**M: Mercury**

- Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust. Sprinkle area with sulfur or calcium polysulfide to suppress mercury. Use Mercury Spill Kit if need be.

**F: Formalin/Formaldehyde**

- Ventilate area of leak or spill. Remove all sources of ignition.
- Wear appropriate personal protective equipment.
- Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.
- Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container.
- Do not use combustible materials, such as saw dust.

**PI:Potassium Iodate**

- Avoid Contact with combustibles (wood, paper, clothing ...).
- Keep substance damp with water spray.
- Vacuum or sweep up material and place into suitable disposable container (plastic bag).

**MC:Mercuric Chloride**

- Vacuum or sweep up material and place into suitable disposable container (plastic bag).
- Wear SCBA or other appropriate breathing apparatus and PPE.
- Avoid breathing dust.
- Keep in closed container for disposal.

**ST: Sodium Thiosulfate**

- Ventilate area of leak or spill.
- Wear protective gloves and clean body-covering
- Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.
- Recover liquid or particulate in 5 gallon bucket. Absorb with a kitty litter and place in disposable bag. Do not use combustible materials, such as saw dust to absorb.

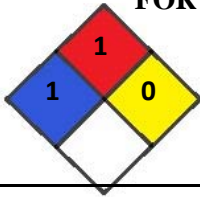
**W: Water**

- Absorb the liquid and wash with water
- Wear PPE

**E: Ethanol**

- Eliminate all ignition sources
- Wear PPE

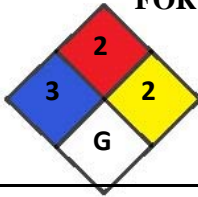
**ALASKA FISHERIES SCIENCE CENTER STANDARD OPERATING PROCEDURES  
 RACE/MACE  
 Dec 2013**



Glycerin (50%)/Thymol(0.3%)  
 solution

#1 Process	General use in the field or on research vessels for otolith preservation
#2 Hazardous Chemicals/Class of Hazardous Chemicals	100% Glycerin may cause eye or skin irritation
#3 Personal Protective Equipment/ Decontamination	Gloves, splash goggles, lab coat or rain gear.  For small spills dilute with water and mop up.  For larger spills, absorb with inert material.  In case of skin/eye contact: flush with running water for at least 15 min.  In case of ingestion: Do not induce vomiting.  In case of inhalation: move to fresh air.
#4 Engineering/ Ventilation Controls	Provide exhaust venilation to keep airborne concentrations of vapors low.
#5 Special Handling Procedures and Storage Requirements	Store at room temp in tightly closed container.
#6 Waste Disposal	Dispose of waste and residues in accordance with local authority requirements. Incinerate. When released into water, this material is expected to readily biodegrade and is not expected to significantly bioaccumulate.

**ALASKA FISHERIES SCIENCE CENTER STANDARD OPERATING PROCEDURES  
RACE/MACE  
Dec 2013**

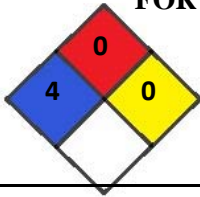


Formaldehyde Solution – 37%

<p>#1 Process</p>	<p>General use of 37% formaldehyde in the field or on research vessels.</p>
<p>#2 Hazardous Chemicals/Class of Hazardous Chemicals</p>	<p>37% formaldehyde Carcinogen; very harmful by absorption through skin/eyes, inhalation and ingestion. If you smell formaldehyde, you may be overexposed. Odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. Possible irreversible effects.</p>
<p>#3 Personal Protective Equipment/ Decontamination</p>	<p>Nitrile or rubber gloves, goggles, apron or rain gear, rubber boots are required. Get a co-worker to stand by as an observer.</p> <p>For small spills Cover spill quickly with a Fan Pad and spray on Formalex to deactivate and absorb chemical. Let material sit for 10 - 15 minutes. Dispose of materials in plastic bag.</p> <p>For larger spills, Use a combination of Fan Pads and Formalex as quickly as possible to contain spill and deactivate it. Vacate area and try to ventilate room, if possible. Wear protective clothing and full face respirator with a formaldehyde cartridge.</p> <p>Formalex is a greenish liquid that is to be used to insure proper chemical deactivation. Formalex should also be used in conjunction with Fan Pads. Place used Fan Pad in plastic bag, seal, and put in bottom of Spill Kit. Fan Pads may be used to absorb small spills alone but these pads work best when used with Formalex to immediately control the vapor layer.</p> <p>In case of skin/eye contact: flush with running water for at least 15 min. Toxic, exposure may cause irritation and possible burns.</p> <p>In case of ingestion: Do not induce vomiting. Rinse mouth with water. Ingestion may cause severe abdominal pain, vomiting, headache, diarrhea.</p> <p>In case of inhalation: move to fresh air. Exposure may cause sore throat, coughing, and shortness of breath. If difficult breathing give oxygen. If not breathing, administer CPR. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Call a physician.</p> <p>***For large spills or extreme exposure of formalin contact FPC &amp; CO or OOD***</p>

#4 Engineering/ Ventilation Controls	All work should be performed outside in plenty of fresh air or in lab (i.e. Oscar Dyson wet lab) with good ventilation and accessible water hoses. While working, have Neutralex nearby or easily accessible. Fume hoods when present, must be tested and certified regularly.
#5 Special Handling Procedures and Storage Requirements	Chemical must be stored at temperatures above 15° c to prevent polymerization of paraformaldehyde. If a ventilation hood is not available, then pouring of chemical must be done outside. At least two people should be involved with large chemical transfers in case of an emergency.
#6 Waste Disposal	Pour waste 37% formaldehyde into a container and mix 1:1 with Neutralex. Let sit for 2 hr or until reaction is complete and wash down the scupper with hose. If formalin spill pads are used, spray Neutralex in excess of spill.
#8 Designated Area	Special storage is required – Must be stored within flammable cabinet or on deck away from living quarters. Make certain that container is well labeled.

**ALASKA FISHERIES SCIENCE CENTER STANDARD OPERATING PROCEDURES  
 RACE/MACE  
 Apr 2015**



Mercuric Chloride

<p>#1 Process</p>	<p>General use in the field or on research vessels for preservaton of water samples containing methane</p>
<p>#2 Hazardous Chemicals/Class of Hazardous Chemicals</p>	<p>Highly Toxic. Dangerous for the environment.          Causes burns. Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.          Readily absorbed through skin. Target organ(s): Kidneys. Nerves.</p>
<p>#3 Personal Protective Equipment/ Decontamination</p>	<p>Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.</p> <p>Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.</p> <p>In case of skin/eye contact: flush with running water for at least 15 min.</p> <p>In case of ingestion: rinse with water.</p> <p>In case of inhalation: move to fresh air.</p>
<p>#4 Engineering/ Ventilation Controls</p>	<p>Use only in a chemical fume hood.</p> <p>Keep airborne concentrations of vapors low.</p>
<p>#5 Special Handling Procedures and Storage Requirements</p>	<p>Store in a cool dry place in a tightly closed container.</p>
<p>#6 Waste Disposal</p>	<p>Dissolve or mix the material with a combustibile solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.</p>

**Appendix C – Photo of drop camera winch.**

**MACE Drop camera winch and block  
for side sample station ops - DY1506**

